

USSR

ROTOV, V. I. and LEVCHENKO, I. D., Ukrainian Scientific Research Institute
of Agricultural Microbiology

"Susceptibility of Sheep to Infection With Br. suis Under Experimental Con-
ditions"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 782-783

Abstract: It has been reported in the literature that sheep are not susceptible to infection with Br. suis. In experiments conducted by the authors, eight passages of Br. suis strain No 1330 through sheep were carried out, using two sheep for every passage - i.e., 16 sheep altogether. The sheep were sacrificed between the 20th and 45th day after infection, whereupon material from parenchymatous organs and lymph nodes was seeded on culture media and cultivation was carried out at 37°C for 3-4 weeks. Upon infection of the sheep, the latter exhibited short-lived fever and an immunological reconstruction of the organism took place which resulted in an increased agglutinin titer on the 10th day after infection. Br. suis became adapted to the organism of the sheep; this was shown by the fact that Brucellae could be isolated from pathological material subjected to microbiological testing. During the eight passages the pathogenicity of Br. suis to the sheep increased, so that finally abortion resulted.

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ROTOV, V. I., and LEVCHENKO, I. D., Mikrobiologicheskii Zhurnal, Vol 33, No 6,
Nov/Dec 71, pp 782-783

A hemoculture of Brucellae could not be isolated from the blood of the infected sheep, although a considerable number of the experimental animals showed signs of local infection with Br. suis.

2/2

USSR

UDC: 621.396.69.002.2

AL'TMAN, D. I., GLADSHTEYN, G. M., ROTSEMAR, D. B.

"A Device for Sorting Radio Components"

USSR Author's Certificate No 279116, filed 14 Apr 69, published 23 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V456 P)

Translation: This Author's Certificate introduces a device for sorting radio components with respect to their temperature dependent parameters. The device contains a vibration hopper, an accumulation mechanism, a measurement circuit and thermostat with automatic temperature control made in the form of alternating stationary and movable plates with heaters and contacts. As a distinguishing feature of the patent, reliability is improved by making the measurement contacts of the thermostat on a spring-loaded sector located on a stationary plate coaxially with the other plates, which interact through a crown wheel with a pinion which is fitted with a shoe and engages with one of the stationary plates of the thermostat.

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USSR

UDC 616.89-072.8

ROTSENA, L. O., Latvian Scientific Research Institute of Experimental and
Clinical Medicine, Ministry of Health, Latvian SSR

"Factors That Determine the Intensity of Effector Correlates of Higher
Nervous Activity in the Aftereffect Period"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1971, pp 113-122

Abstract: The purpose of the study was to determine the extent to which the effector structure and intensity of the aftereffect depend on the effector structure and intensity of the preceding conditioned reaction, i.e., the extent to which the effector structure of the initial portion of the interval between stimuli depends on the effector structure of the final portion of the preceding interval. Experiments were performed on dogs in which food and motor-defense conditioned reactions as well as nonspecific reactions of alarm in response to electrical stimulation had been formed over a period of 4 years. The results revealed a statistically significant correlation between the intensity of the effector components of higher nervous activity in the aftereffect period and the dynamics of the same effector components during the action of the conditioned and unconditioned stimuli. The intensity of the aftereffect was determined mainly by the signal value of the cessation of

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ROTSENA, L. O., Izvestiya Akademii Nauk Latvyskoy SSR, No 2, 1971, pp 113-122

stimulation. If the cessation signaled a decrease in alarm (i.e., relative demobilization of higher nervous activity), the activity of the corresponding skeletal and autonomic components quickly returned to the baseline values. If, on the other hand, the cessation of stimulation signaled a continuation or increase of alarm (i.e., mobilization of the functional resources of the brain), the activity of the same components during the after effect period remained high or continued to intensify.

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USSR

UDC 634.0.812.719

SHTEYNS, K. N., GOLDSHTEYNS, A. Ya., ROTSSENS, K. A., DOLATSIS, Ya. A.,
and RAYAVEYE, E. L., Institute of Wood Chemistry, Academy of Sciences
Latvian SSR

"Deformation Characteristics of Birch Wood, Modified Chemically by Radiation,
as a Function of Polymer Content"

Riga, Izvestiya Akademii Latviyskoy SSR, No 11(304), 1972, pp 35-41

Abstract: The basic components of the pliability tensor of polystyrene which has been modified chemically by radiation as a function of its concentration in birch wood were determined. The module of elasticity and the module of shear were also measured for three groups of samples: a control group, a group exposed to an integrated radiation dose of 14 mrads, and a group containing the chemically modified polystyrene. The components of interest were a_{1111} , a_{2222} , a_{1212} , a_{1313} , and a_{2323} . The mathematical form of these is also given. The components a_{2222} and a_{2323} showed a greater dependence (a second order function) on the polystyrene concentration than the other three components, which had a first order dependence.

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USSR

UDC: 621.396.6.019.3

ROTSHIL'D, L. G.

"Predicting Reliability Indices of Television Receivers Under Mass Production Conditions"

V sb. Obmen opytom v radiopromyshlennosti (Experience Pooling in the Electronics Industry--collection of works), Vyp. 6, Moscow, 1970, pp 32-37 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V250)

Translation: The author analyzes the effect which objective regularities of serial production have on the quality of products, i. e. on the aggregate of properties which characterize the technical state of the products in the given time interval. Criteria are developed for quantitative evaluation of the characteristics of production quality and consumer quality (consumer quality is the aggregate of properties which characterize the result of utilization of the product in the working process). Consideration is given to the possibilities of predicting reliability from the current characteristics of production quality. An operational map of a plan for quality control is plotted. Three illustrations, bibliography of five titles. H. S.

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1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--INCENTIVES FOR QUALITY IMPROVEMENT OF TELEVISION RECEIVERS DURING
THEIR CONVEYOR PRODUCTION -U-
AUTHOR--ROTSHILD, I.G. *R*
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 4, PP 52-54
DATE PUBLISHED--70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, NAVIGATION

TOPIC TAGS--TV RECEIVER, INDUSTRIAL PRODUCTION, QUALITY CONTROL,
RELIABILITY ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/1766

STEP NO--UR/0422/70/000/004/0052/0054

CIRC ACCESSION NO--AP0101813

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 021

CIRC ACCESSION NO--AP0101813

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRACTICAL METHODS DESCRIBED
STIMULATE A QUALITY IMPROVEMENT UNDER MASS PRODUCTION OF TV SETS.
INTRODUCTION OF THESE METHODS IS A COMPONENT PART OF THE SYSTEM OF
STATISTICAL QUALITY CONTROL AND RELIABILITY FORECASTING, NOW ACTIVE IN
THE INDUSTRY.

UNCLASSIFIED

USSR

UDC 599.32+595.775:591.5+591.9

ROTSHIL'D, Ye. V., KONDRASHEV, V. E., TABUNINA, T. I., and POSTNIKOV, G. B.,
All-Union Scientific Research Antiplague Institute "Mikrob", Saratov and Gur'-
yevskaya Antiplague Station

"Rodents and Fleas in the Enzootic Plague Region Between the Ural and Emba
Rivers"

Moscow, Zoologicheskii Zhurnal, Vol 49, No 10, Oct 70, pp 1548-1562

Abstract: The desert located north of the Caspian Sea between the Ural and Emba rivers is an area of enzootic plague. The numerous specimens of fauna caught by the Gur'yevskaya Antiplague Station for bacteriological investigations, together with data available in the literature from 1875 to 1969 were used to systematize the available information and to shed light on the problem. The whole region was divided into small areas and still smaller landscapes according to such ecological factors as geology, surface relief, and type of soil. Data were compiled on the distribution of various rodents and the average number of epizootic fleas living on each type of animal. It was found that high soil salinity and moisture were unfavorable for *Citellus pygmaeus*, *Citellus fulvus*, and *Meriones tamariscinus*, but did not affect the distribution of *Rhombomys*
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ROTSHIL'D, Ye. V., et al., Zoologicheskii Zhurnal, Vol 49, No 10, Oct 70,
pp 1548-1562

opimus. The number of fleas living on Rhombomys opimus and Citellus pygmaeus was especially high in landscapes of recently dried up deltas which have moderate soil salinity and moisture. These factors promote the proliferation of plague-spreading epizoots among rodents.

2/2

USSR

UDC 582.662(574)

R
ROTSCHILD, Ye. V., All Union Scientific Research Antiplague Institute "Mikrob,"
Saratov)

"*Salsola euryphylla* Botsch, an Inhabitant of Variegated Calcareous Rocks in the
Aral Region"

Leningrad, Botanicheskiy Zhurnal, Vol 55, No 4, 1970, pp 557-558

Abstract: *Salsola euryphylla* is a small bushy plant sitting close to the ground, with broad leaves branching out, up to 50-70 cm in diameter and about 20 cm high. It grows only in salt marshes and springs on variegated chalky ground, especially along cracks in the ground. Frequently it crowns a denuded hillock in the marsh. It also grows on mud and clay which contain salt and are of brick-red color. There are only a few salt marshes and springs in the Aral region where this little multicolored plant is found. It is a typical representative of the old varicolored flora. It is readily identifiable by its morphology and its ecology. Together with *Salsola euryphylla*, in the salt marshes, were found *Atriplex cana*, *A. verrucifera*, *Halocnemum strobilaceum*, *Limonium suffruticosum*, *Suaeda physophora*, *Nitraria schoberi*, *Kalidium caspicum*, *Camphorosma lessingii*, *Tripolium vulgare*, *Puccinella dolicholepsis*, and a few others.

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ROTSHTEYN, A. Ya.

CONTINUOUS AUTOMATIC MEASUREMENT OF GEOMAGNETIC FIELD COMPONENTS

Article by A. Ya. Rotshteyn and G. V. Alchekov, Leningrad, *Geofizicheskiye izmereniya*, Moscow, No. 25, 1977, pp. 32-38.

A. Ya. Rotshteyn [1960] proposed a method for automatic orientation of an auxiliary alternating field (of the Helmholtz rings) at an angle of 90° with respect to a constant field, which is based on modulation of a self-oscillating magnetometer. In the author's certificate of automatic rotation of the measured field vector in a direction perpendicular to the axes of the coils generating the modulating field is proposed. From the magnitude of the coil current and the magnetometer signal frequency, the components of the measured field are determined.

In the present work, errors in measuring the components connected with the introduction of auxiliary alternating fields with autocompensation are investigated. With the aid of an orthogonal system of Helmholtz rings, we shall apply auxiliary fields in directions antiparallel to the components of geomagnetic field X and Y, respectively.

$$H_x = H_{ex} - H_{ay} \sin \Omega t; \quad H_y = H_{ey} - H_{ax} \sin \Omega t,$$

where H_{ex} and H_{ey} are the fields which should compensate the appropriate components (in the given case X and Y); H_{ax} and H_{ay} are the sinusoidal alternating fields of frequency Ω and Ω , applied along H_{ax} and H_{ay} . Designating $\Delta X = X - H_{ax}$; $\Delta Y = Y - H_{ay}$, we shall write an expression for the total field:

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SPRS 56099
25 May 72

KOTSHTEYN, A. Ya.

UDC 550.83.002.56

ADJUSTMENT OF QUANTUM MAGNETOMETERS WHEN MEASURING GEOMAGNETIC COMPONENTS

[Article by A. Ya. Kotshteyn and G. V. Alekseyev; Leningrad, Geofizicheskaya apparatura, Russian, No 45, 1971, pp 38-44]

When measuring components of the Earth's magnetic field H_k should be oriented exactly along the auxiliary measured component. For this purpose it is necessary to have in the device construction a certain basic axis along which, or along a direction perpendicular to it, the magnetic axis of the auxiliary magnetic system may be easily established. The direction of the axis of revolution OO_1 of the rings and the direction of the vertical line may be represented as a sum of two angles: $\alpha = \theta + \eta$, where θ is the angle between OZ and the axis of revolution OO_1 , and η is the angle between the direction of the ring field H_k and the axis of revolution OO_1 or a perpendicular to it.

The angle θ may be reduced to a minimum by the use of gravitation angle indicators, liquid levels, the use of inclinometers, etc. For exact adjustment of angle η , it is necessary to have an indicator-discriminator for the magnetic axis' angular position, in which capacity quantum-sensitive elements with high resolving power may serve.

The terminology corresponds to that accepted in the literature, for example in the paper by N. M. Pomerantsev, V. M. Rezhkov, and G. V. Skrotskiy: "Kvantovaya magnitometriya" (Quantum Magnetometry). In the collected work "Geofiz. apparatura" (Geophysical Equipment), issue 33, 34, L., Nedra, 1967.

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SPRS 56099
25 May 72

ROTSHTEYN, A. Ya.

UDC 550.83.08

ABSOLUTE MARINE COMPONENT MAGNETOMETER

[Article by G. V. Alekseyev, S. P. Bakalinskiy, A. Ya. Roizhteyn, and B. N. Tsukatskoy] Leningrad, Geofizicheskaya Apparatura, Russian, Vol 47, 1971, pp 35-40]

During the continual geomagnetic measurements in the waters of seas and oceans performed from the nonmagnetic vessel Zaryn, the errors in measuring the components and modulus of the geomagnetic field were: $\Delta H = \pm 2 = \pm 100\%$, $\Delta T = \pm 40$. The difference in the measurements is caused by the fact that the relatively continual measurements is caused by means of a ferrosounder magnetometer were controlled of T by nuclear-precessional one, while for control of the H component, a fuel compass was used, the mean error of the H component during relatively quiet weather was $\Delta H = \pm 100$ [Ivanov, 1966].

In 1967 a marine component quantum magnetometer was developed and constructed by the Leningrad branch of IZMIRAN [Institute of Terrestrial Magnetism, the Ionosphere and Radio Wave Propagation of the USSR Academy of Sciences] jointly with IZMIRAN Special Design Bureau, in which a self-exciting cesium sensor of the T magnetometer was applied [Kozlov, 1965]. During measurements from the moving vessel, the component magnetometer was placed on a reversing device.

For reducing the deviation caused by the ferromagnetic masses of the gyrovertical device, magnetometer sensor 1 (Fig. 1), with compensating rings 2, is removed the maximum possible distance from them with the aid of a shaft, 4, 0.9 meter long. The shaft is placed in two bearings in a cylindrical casing 5, fixed directly to the external gimbal 6 of the four-gyroscope gyrovertical device of the C2 type. The optical axis of the sensor is directed at an angle of 45° to the shaft revolution axis. A controlling device 3 permits compensating rings to rotate in two mutually orthogonal

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JPRS 56099
25 May 72

ROTSHTEYN, A. Ya.

UDC 550.83.08
ERRORS IN A DEVICE FOR MEASURING DECLINATION AND INCLINATION ANGLES

[Article by L. I. Popkova, A. Ya. Rotshteyn, and S. F. Farnakovskiy; Leningrad, Gosfizicheskaya Apparatura, Russian, Vol 46, 1971, pp 20-23]

Errors in the device for measuring angles of declination D and inclination I, based on the method of electrical stabilization of the auxiliary magnetic field vector H, of independent causes of a random character [Popkova, 1970]. Making use of the central boundary theorem [Venttsel', 1964], we shall consider the law of distribution of the total device error to be normal. Then the mean square error of the device is determined by the expression

$$\sigma = \sqrt{\sum_{i=1}^n \sigma_i^2} \quad (1)$$

where σ_i is the error produced by the i-th random cause; n is the number of random causes.

The device being examined utilizes information on the object rotation angles from the orienting systems whose minimum mean square error is σ_1 . Its creation is justified if all the remaining errors of the device will not augment the total error in measuring angles D and I by more than 20% in comparison to the error of orienting systems.

The basic components of the device error (with the exception of the orienting system's error) are: 1) errors in computing components of H_i in the computer-solver, which is the coordinate converter (CC) on the sine-cosine revealing transformers (SCRT); 2) error of producing vector H_i in the Helmholtz rings; 3) error of the quantum magnetometer

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JPAS 56099
25 May 72

USSR

UDC 621.376.54

ODINOKOV, V. F., ROTSHEYN, L. I.

"Pulse Duration Modulated Signal Demodulator"

Moscow, Izmeritel'naya Tekhnika, No 10, 1971, p 66

Abstract: A study was made of a scheme for a converter of pulse duration modulated signals to an analog signal which insures high linearity of the conversion characteristic. In addition, in contrast to the known converters, it has appreciably less phase delay (one interpolation interval instead of 3). The demodulator was used in a low-series device as a component of the data transmission line. Under field conditions, the conversion nonlinearity did not exceed 0.1% in the temperature range from -40 to $+50^{\circ}\text{C}$, the steepness of the modulation characteristic did not change by more than 0.5% for $\tau \geq 10$ microseconds and an interpolation interval of $\leq 3 \cdot 10^{-3}$ seconds. In the device, the primary conversion of the time interval τ into the voltage amplitude U is carried out by the principle of linear charge of the capacitance by a direct current from a triode generator. The commutation processes of the switching triodes were insured for $\tau_{p1} = \tau_{p2} = \tau_{p3} = 10$ microseconds, $U_{\text{max}} = 7$ volts.

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USSR

UDC: 621.373.(72.6(088.8)

ROTSHTEYN, L. I., SHIROKOV, A. V.

"A Device for Automatically Stabilizing the Frequency of a Harmonic Oscillator With Discrete Frequency Control"

USSR Author's Certificate No 259174, filed 27 Feb 68, published 28 Apr 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D377 P)

Translation: This Author's Certificate introduces a device for automatically stabilizing the frequency of a harmonic oscillator with discrete frequency control. The device contains a stabilized wide-band harmonic oscillator with discrete frequency grid, a mixer, an IF amplifier, an automatic phase and frequency control system, and an actuating element for frequency control of the wide-band oscillator. To extend the band coverage of automatic frequency control, an additional electronic switch is connected between the discrete switch and the system for automatic phase and frequency control. This additional switch is used for discrete changeover of the automatic control system from the frequency to the phase mode of operation. V. P.

1/1

1/2 014
UNCLASSIFIED
TITLE--SHEAR VISCOSITY OF A BINARY MIXTURE OF SIMPLE LIQUIDS -U-
AUTHOR--(04)--BRUKLEVINSON, E.T., VIKHRENKO, V.S., NEMTSOV, V.B., ROTT, L.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 70-5
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--FLUID VISCOSITY, BINARY FLUID SYSTEM, TENSOR ANALYSIS, SHEAR
MODULUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0196
CIRC ACCESSION NO--AT0105272
STEP NO--UR/0139/70/013/002/0070/0075
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0105272

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. FOR THE BINARY MIXT. OF THE SIMPLE

LIQS. THE TENSOR OF THE VISCOSITY FACTORS IS GIVEN AND THE RELATION

BETWEEN THE SHEAR VISCOSITY FACTOR AND THE LIMITING VALUE OF THE SHEAR

MODULUS FOR THE SIMPLE LIQ. MIXT. IS DERIVED.

FACILITY:

BELGRUSS. TEKHNOL. INST. IM. KIROVA, MINSK, USSR.

UNCLASSIFIED

172 014 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--TECHNOLOGICAL IMPROVEMENT OF THE PROCESS FOR REMOVAL OF HYDROGEN
SULFIDE FROM COKE OVEN GAS -U-
AUTHOR--(03)-ROTT, M.V., SEVOSTYANOV, V.N., SHUKH, YA.I.
COUNTRY OF INFO--USSR
SOURCE--KOKS KHIM. 1970, (3), 33-8
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, CHEMISTRY

TOPIC TAGS--HYDROGEN SULFIDE, CARBONATE, SULFURIC ACID, CHEMICAL
SYNTHESIS, SULFUR DIOXIDE, COKE, INDUSTRIAL FURNACE, INDUSTRIAL WASTE,
AIR POLLUTION CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1407

STEP NO--UR/0068/70/000/003/0033/0038

CIRC ACCESSION NO--AP0109469

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 014

CIRC ACCESSION NO--AP0109469

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IN A PLANT BUILT IN 1960 FOR

REMOVAL OF H SUB2 S FROM COKE OVEN GAS, VACUUM CARBONATE METHOD WAS USED

AND H SUB2 SO SUB4 WAS SYNTHESIZED BY WET CATALYSIS. ALTERATIONS FOR

CONTINUOUS OPERATION INTRODUCED CHARACTERISTICS THAT REDUCED THE

EFFICIENCY. THE PROCESS WAS ACCORDINGLY IMPROVED BY A SERIES OF MAJOR

MODIFICATIONS. THESE INCLUDING SUBDIVIDING THE COOLER INTO SECTIONS FOR

SELECTIVE USE; INCREASING THE WATER FLOW AND PROVIDING FOR ITS

PURIFICATION AND REPLENISHMENT; REPLACING THE CAST IRON RADIATORS OF THE

COOLER FOR THE ABSORBENT SOLN. WITH TUBULAR CONDENSERS AND INCREASED

COEFF. OF HEAT TRANSFER; CAULKING THE SEAMS OF THE ACID COOLER TUBES

WITH CEMENT AND RECORDING THE SOLN. ACIDITY; AIR BLOWING OF THE

CATALYST FOR SO SUB2 OXIDN.; ELIMINATION OF EQUIPMENT BY IMPROVED SO

SUB2 CIRCULATION; PROVIDING FOR STEADY OPERATION OF THE ELECTROSTATIC

FILTERS; AND REARRANGING THE EQUIPMENT TO REDUCE CORROSION. THESE

MEASURES RAISED THE VACUUM AND THE H SUB2 SO SUB4 YIELD; REDUCED THE

REQUIREMENTS FOR CIRCULATING WATER BY 30-40PERCENT, THE LOADING ON THE

EVAPORATORS, AND THE REQUIREMENTS FOR FREQUENT MAINTENANCE.

FACILITY: RUTCHENKOVSK, KOKSOKHIM. ZAVOD., USSR.

UNCLASSIFIED

ACC. NO. **AA0101003**

Abstracting Service: **3-70**
Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent,

Ref. Code:

UR 0482

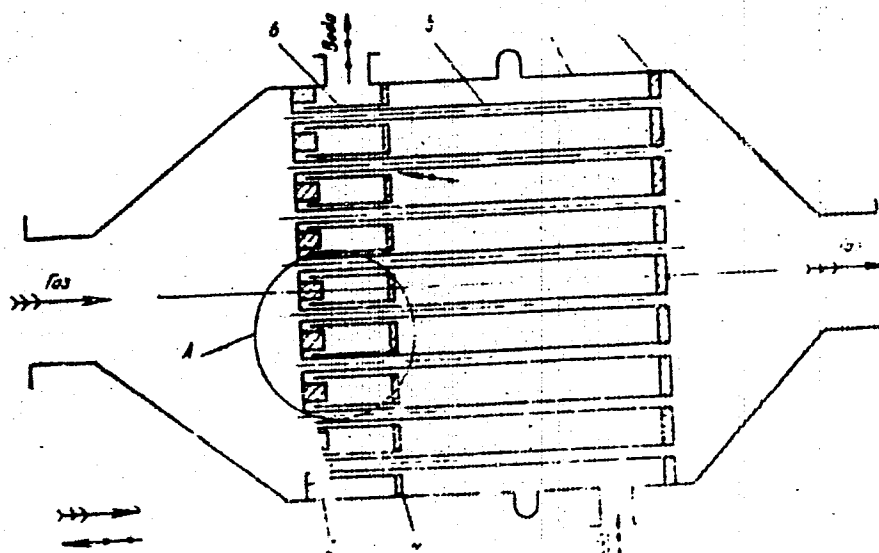
145729 HIGH-TEMPERATURE GAS CONDENSER cage-tube is distinguished by making space at tube 5 fixing position into the front disc 2 for separating the tubular surface of the disc from the gas pipe. Thus, the tubes are connected with flat washer 7 closing the space with the outer sides of the disc. Besides, guiding pipes 6 are placed co-axially with the gas tubes at their inner edges, and mounted in a dividing cascade 4. This increases the cooling efficiency.

17.6.61 as 734631/40-23 R.K. ROTT (4.7.69) Bul. 10/
10.3.69. Class 62c, Int. Cl. B 60h.

REEL/FRAME
19850551

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18

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19850552

1/3 010 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ISOTOPIC COMPOSITION OF CARBON IN NATURAL GASES NORTHERN WEST
SIBERIAN LOWLAND IN RELATION TO THEIR ORIGIN -U-
AUTHOR-(05)-YERMAKOV, V.I., LEBEDEV, V.S., NEMCHENKO, N.N., ROVENSKAYA,
A.S., GRACHEV, A.V.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. SSSR 1970, 190(3), 683-6 (GEOCHEM)
DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, EARTH SCIENCES AND
OCEANOGRAPHY
TOPIC TAGS--NATURAL GAS, CARBON, ISOTOPE, RADIOCARBON DATING, GEOLOGI
SURVEY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0272 STEP NO--UR/0020/70/190/003/0683/0686

CIPC ACCESSION NO--AT0055068

UNCLASSIFIED

2/3 010

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0055068

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A NEW NATURAL GAS PROVINCE, CONTG. RICH RESOURCES, WAS DISCOVERED RECENTLY IN THE NORTHERN PART OF WEST SIBERIAN LOWLAND. THE GAS DEPOSITS THERE ARE CONFINED TO THE CENOMANIAN STRATA FORMING AN UPPER PART OF THE POKURSK OILBEARING SERIES (APTIAN-ALBIAN-CENOMANIAN) WHICH CONSIST MOSTLY OF CONTINENTAL COASTAL MARINE FACIES. THE ISOTOPIC COMPN. OF C IN THESE GASES WAS DETD. AND COMPARED WITH THE PDB (THE CHICAGO STD. WITH PRIME12 C- PRIME13 C EQUALS 88.99PERCENT) TO DET. THE ORIGIN OF GAS IN THESE DEPOSITS. THE DEPOSITS OCCUPY A SPECIAL POSITION AMONG THE OTHER NATURAL GAS DEPOSITS OF YOUNG PLATFORMS, SITUATED IN MESOZOIC FORMATIONS, BEING MUCH RICHER IN PRIME12 C ISOTOPE (DELTA PRIME13 C FROM MINUS 5.83 TO MINUS 6.78PERCENT). E.G., THE GASES OF BUKHARA-KHIVA (TURANSK PLATFORM) HAVE DELTA PRIME13 C FROM MINUS 3.02 TO MINUS 3.82PERCENT AND GASES IN KRASNODAR DEPOSITS (SCYTHIAN PLATFORM) HAVE DELTA PRIME13 C VARYING FROM MINUS 3.76 TO MINUS 4.66PERCENT. THE DELTA PRIME13 C OF NORTHERN WEST SIBERIAN DEPOSITS IS VERY SIMILAR TO THAT OF THE MARSH GASES IN EUROPEAN PARTS OF THE U.S.S.R. WHERE IT VARIES FROM MINUS 5 TO MINUS 6.9PERCENT. THE DEGREE OF ORG. SUBSTANCE METAMORPHISM INDICATED THAT CONDITIONS OF GAS FORMATION IN NEW DEPOSITS WERE SIMILAR TO THE COALIFICATION IN APTIAN-ALBIAN-CENOMANIAN DEPOSITS AND TO GAS FORMATION IN RECENT MARSHES. THE MIGRATION OF GASES FROM DEPOSITS, UNDERLYING THE POKURSK SERIES, WAS EXCLUDED BY THE DATA ON ISOTOPIC COMPN. OF HYDROCARBON GASES OBTAINED DURING TESTING OF DEEP HORIZONS IN SOME OF THESE DEPOSITS (DELTA PRIME13 C FROM MINUS 3.85 TO MINUS 4.56PERCENT).

UNCLASSIFIED

3/3 010

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0055068

ABSTRACT/EXTRACT--THE SOURCE OF GASES, DURING FORMATION OF THESE GAS
DEPOSITS, WAS THE COAL SUBSTANCE SCATTERED IN THE ROCKS OF THE
APTIAN-ALBIAN-CENOMANIAN COMPLEX.

UNCLASSIFIED

USSR

UDC: 621.372.852.15

KADUK, B. G., ROVENSKIY, A. Ya., ROVENSKIY, D. Ya., PIEMAN, B. G., All-Union Scientific Research Institute of Analytical Instrument Building

"An Electronic Filter"

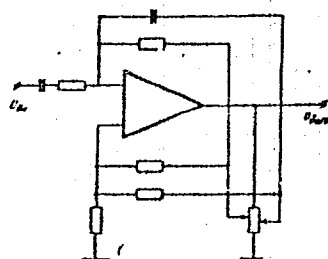
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311372, Division H, filed 10 Apr 70, published 9 Aug 71, p 207

Translation: This Author's Certificate introduces an electronic filter which contains an amplifier with a differential input and a parallel RC circuit. As a distinguishing feature of the patent, provision is made for adjusting the resonance frequency over a broad range by connecting the common point of the RC circuit to the inverting input of the amplifier, connecting the second ends of the elements in the RC circuit to different leads of a variable resistor at the output of the device, and connecting the same ends of these elements through resistors to a fixed resistor which is connected to the noninverting input of the amplifier.

1/2

USSR

KADUK, B. G., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311372, Division H, filed 10 Apr 70, published 9 Aug 71, p 207



Single Crystals

USSR

UDC 669.871-52

ROVENSKIY, D. Ya., SHENDEROVICH, I. L., and TITUNIK, L. N.

"The Effect of the Temperature Fluctuation on the Homogeneity of Single Crystals Grown From Melt"

Moscow, Tsvetnyye Metally, No 4, Apr 72, pp 54-55

Abstract: An experimental study was made of the effect of changes of the melt temperature in the interval from 0.025 to 10 °C on properties of gallium arsenide single crystals grown by the method of directed horizontal crystallization. It is demonstrated that the spectrum of disturbances is sufficiently wide, but a basic frequency with a ~ 15 sec period and a ~ 0.25 °C amplitude emanates and the fluctuation disturbances affect the heterogeneity of the material. The effect of compulsory periodic perturbations, with amplitudes from 0.5 to 2 °C and periods from 2 to 40 min was investigated. On the basis of experimental data, the requirements were formulated for a system with automatic control of the process of directed horizontal crystallization. Two illustr., four biblio. refs.

USSR

UDC: 621.372.852.15

KADUK, B. G., ROVENSKIY, A. Ya., ROVENSKIY, D. Ya., FIDMAN, B. G., All-Union Scientific Research Institute of Analytical Instrument Building

"An Electronic Filter"

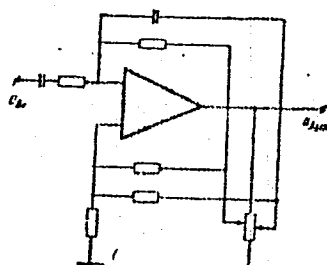
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311372, Division H, filed 10 Apr 70, published 9 Aug 71, p 207

Translation: This Author's Certificate introduces an electronic filter which contains an amplifier with a differential input and a parallel RC circuit. As a distinguishing feature of the patent, provision is made for adjusting the resonance frequency over a broad range by connecting the common point of the RC circuit to the inverting input of the amplifier, connecting the second ends of the elements in the RC circuit to different leads of a variable resistor at the output of the device, and connecting the same ends of these elements through resistors to a fixed resistor which is connected to the noninverting input of the amplifier.

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USSR

KADUK, B. G., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311372, Division H, filed 10 Apr 70, published 9 Aug 71, p. 207



2/2

USSR

UDC 621.385.632

POBEDONOSTSEV, A. S., ROVENSKIY, G. V., and MAL'KOVA, N. Ya.

"Theoretical Analysis of a TWT With Increased Phase Velocity of a Wave in the Output Section of the Delay System"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology) Scientific-Technical Collection. Microwave Electronics), 1971, Issue 4, pp 148-150 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8A184)

Translation: A theoretical study is made of a traveling-wave tube with an increased phase velocity of a wave in the output section under the condition of continuity of the power flux among the latter sections. It is shown that with operation according to such a scheme and with increased parameters, nonsynchronisms of the input section for electrons and the total efficiency are increased. Summary.

1/1

USSR

UDC: 621.385.632.032(088.8)

ROVENSKIY, G. V., SOKOLOVA, L. N.

"A Coaxial-Spiral Adapter for Traveling-Wave Tubes"

USSR Author's Certificate No 273881, filed 14 Aug 68, published 8 Dec 70
(from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No 6A173P)

Translation: This Author's Certificate introduces a coaxial-spiral adapter for traveling-wave tubes. The adapter is made in the form of a flat radial spiral such as an Archimedes spiral located in a plane perpendicular to the axis of the tube and enclosed in a metal shield formed by side plates placed to both sides above the plane of the spiral and connected along the edges by a ring-shaped strip. As a distinguishing feature of the patent, matching properties are improved by separating the inner surface of the ring-shaped strip from the end turn of the radial spiral, which has the maximum diameter, by a distance equal to the pitch of the spiral.

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USSR

UDC 621.385.632

NOYKINA, T.K., ROVENSKIY, G.V.

"Experimental Investigation Of TWT With Electrostatic Focusing Of The Field Of A Rotating Electron Stream"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 138-140 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A173)

Translation: An experimental investigation is conducted of the passage of current in a traveling-wave tube with electrostatic focusing of the field of a rotating electron stream. The results of the investigation show good qualitative and quantitative agreement with the results of theoretical trajectory analysis conducted previously. 2 ref. Summary.

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USSR

UDC 621.385.632.01

POBEDONOSTSEV, A. S., ROVENSKIY, G. V., MAL'KOVA, N. YA.

"Investigation of TWT With Velocity Jump of Electrons And With Phase-Velocity Jump Of A Wave In The Output Section Of A Delay Line"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 12-18
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A183)

Translation: The results are presented of a computation of a traveling-wave tube with a velocity jump of electrons and a phase-velocity jump of the wave in the output section of a delay line. The characteristics are considered of the operating mechanism of such TWTs and their advantage in electron and overall efficiency in comparison with ordinary TWTs. The experimental characteristics are presented of a TWT with a phase-velocity jump. 3 ref. Summary.

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UDC 621.385.632.01

USSR

POBEDONOSTSEV, A. S., ROVENSKIY, G. V., MAL'KOVA, N. YA.

"Investigation of TWT With Velocity Jump of Electrons And With Phase-Velocity Jump Of A Wave In The Output Section Of A Delay Line"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 12-18
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A183)

Translation: The results are presented of a computation of a traveling-wave tube with a velocity jump of electrons and a phase-velocity jump of the wave in the output section of a delay line. The characteristics are considered of the operating mechanism of such TWTs and their advantage in electron and overall efficiency in comparison with ordinary TWTs. The experimental characteristics are presented of a TWT with a phase-velocity jump. 3 ref. Summary.

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USSR

UDC 621.385.632

R
ROVNSKIY, G.V.

"Approximate Evaluation Of The Effect Of Distributed Losses On The Efficiency Of A Type O Traveling-Wave Tube"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 3, pp 3-7 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A142)

Translation: On the basis of the solution of an approximate equation for the energy balance in the case of a nonlinear regime of a TWT with distributed losses, an analytical expression is obtained for calculation of the efficiency of the decelerating system, characteristic with respect to a decrease of the output power because of the distributed losses in the decelerating system. Results of the calculations for the formulas obtained coincided with the results of rigorous nonlinear theory. This makes it possible to use the expression derived for an engineering calculation for a TWT. G.B.

1/1

284

USSR

UDC 539.4

LYUTTSAU, V. G., BELOUSOV, N. N., and ROVINSKIY, B. M., Moscow

"On the Generation of Micropores in Alloys"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 81-84

Abstract: The microporosity in aluminum alloys was investigated by the X-ray shadow microscopy method. The character and sizes of micropores generating in alloys during the crystallization process and heat treatment were determined. It is demonstrated that an increase of the cooling rate of alloys during the crystallization leads to a decrease in the dimensions of micropores and an increase of their concentrations. The fact was ascertained of the micropore generation in locations corresponding to dispositions of the second phase in alloys by heating and subsequent hardening. Considerations are presented on the mechanism of micropore generation by heat treatment of alloys containing dispersed inclusions of the second phase.

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1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--TOTAL EXTERNAL REFLECTION OF X RAYS BY A ROUGH SOLID SURFACE -U-
AUTHOR--(03)-ROVINSKIY, B.M., SINAYSKIY, V.M., SIDENKO, V.I.
COUNTRY OF INFO--USSR
SOURCE--FIZIKA TVERDOGO TELA, JAN. 1970, 12(1), 138-145
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--X RAY, SURFACE PROPERTY, STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1292 STEP NO--UR/0181/70/012/001/0138/0145
CIRC ACCESSION NO--AP0124943
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSITY AND SHAPE OF X RAY BEAMS REFLECTED (TOTAL EXTERNAL REFLECTION) FROM STEEL AND OTHER SOLID SURFACES WITH VARIOUS DEGREES OF SURFACE FINISH WERE STUDIED IN RELATION TO THE MEAN HEIGHT OF THE MICROASPERITIES CHARACTERIZING THE SOLID SURFACE. THE INTENSITY OF THE REFLECTED BEAM AND ITS SPREAD (DIFFUSENESS) WERE DIRECTLY RELATED TO THE MEAN HEIGHT OF THE ASPERITIES (THE INTENSITY FELL AND THE SPREAD INCREASED AS THE ASPERITIES BECAME LARGER). THE POSSIBILITY OF USING THESE CHARACTERISTICS PRACTICALLY AS A GUIDE TO SURFACE QUALITY IS CONSIDERED.

UNCLASSIFIED

USSR

UDC 539.04-539.17

VOROTNIKOV, G. S., ROVINSKIY, B. M.

"A Comparative Evaluation of Results of Relaxation Tests on Annular and Cylindrical Specimens"

Kiev, Problemy Prochnosti, No 6, June 1970, pp 25-27

Abstract: Results of comparative relaxation tests on annular and cylindrical specimens at room temperatures are presented. It is pointed out that in tests conducted by earlier authors, use was made of the BR-8 machine, for which the point of departure is not deformation, but the load upon the specimen. The curves presented by earlier authors for comparison of the relaxation of annular and cylindrical specimens have large point dispersion fields which mutually overlap; this casts doubts about the full comparability of the data. The results of the present investigation indicates the possibility of considerable divergence in the relaxation curves for annular and cylindrical specimens, and furthermore with a sign opposite to that which should have been theoretically expected. This is an indication of the fact that the use of data obtained by the annular motion for a uniaxial stressed state is possibly open to doubt, and requires further detailed experimental testing and theoretical study.

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1/2 024

UNCLASSIFIED

TITLE—ELE TRIC CONDUCTIVITY OF XENON PLASMA —U—

PROCESSING DATE—30UCT70

AUTHOR—(02)—BAKEYEV, A.A., ROVINSKIY, R.YE.

COUNTRY OF INFO—USSR

SOURCE—TEPLOFIZ. VYS. TEMP.; 8: 207-9, 1970

DATE PUBLISHED—70

SUBJECT AREAS—PHYSICS

TOPIC TAGS—PLASMA CONDUCTIVITY, DISCHARGE PLASMA, XENON, PLASMA DENSITY,
CURRENT DENSITY, PLASMA ELECTRON TEMPERATURE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—1988/1461

STEP NO—UR/0294/70/008/000/0207/0209

CIRC ACCESSION NO—AP0106217

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0106217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRIC CONDUCTANCE OF XENON PLASMA WAS STUDIED AS A FUNCTION OF DENSITY OF THE DISCHARGE CURRENT. THE RELATIONSHIP BETWEEN THE ELECTRIC CONDUCTIVITY AND TEMPERATURE OF THE DISCHARGE IN A THERMAL EQUILIBRIUM PLASMA WAS ANALYZED. IT WAS ASSUMED THAT PLASMA CONDUCTIVITY IS CONSTANT ACROSS THE DISCHARGE TUBE. THE DISCHARGE TEMPERATURE WAS OBTAINED USING THE SAHA FORMULA BASED ON INTERFEROMETRIC MEASUREMENTS OF CHARGED AND NEUTRAL PARTICLE CONCENTRATIONS AND ON THE ABSOLUTE MEASUREMENTS OF PLASMA CONCENTRATION AND ABSORPTION. DATA OBTAIN SHOW THAT AT P IS GREATER THAN OR EQUAL TO 400 MM HG, THE ELECTRIC CONDUCTIVITY AS A FUNCTION OF CURRENT DENSITY IS DESCRIBED BY EMPIRIC FORMULA $\sigma = 0.885 J^{-1/2}$ (WHERE σ IS OHM⁻¹ CM⁻¹ AND J IS A-CM⁻²). AT P EQUALS 100 MM HG, THE CONDUCTIVITY IS HIGHER BUT THE σ FUNCTION OF J IS CONSERVED. THE DATA ON XENON PLASMA CONDUCTIVITY AS A FUNCTION OF THE DISCHARGE TEMPERATURE WAS INCONCLUSIVE.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ABSORPTION OF RADIATION IN A HIGH PRESSURE PULSED ARGON DISCHARGE
-U-
AUTHOR--(03)--BAKEYEV, A.A., ROVINSKIY, R.YE., SHIROKOVA, I.P.
COUNTRY OF INFO--USSR
SOURCE--OPT. SPEKTRISK. 1970, 28(3), 594-5
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ABSORPTION SPECTRUM, GAS DISCHARGE, ARGON, ELECTRIC DISCHARGE
RADIATION, ABSORPTION COEFFICIENT, PULSE EXCITATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1134 STEP NO--UR/0051/70/028/003/0594/0595
CIRC ACCESSION NO--AP0124789
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0124789

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. AND WAVELENGTH
DEPENDENCE WAS MEASURED OF THE CONTINUOUS ABSORPTION OF RADIATION IN THE
PULSED AR DISCHARGE. THEORETICAL AND EXPT. VALUES OF THE WAVELENGTH
DEPENDENCE OF THE ABSORPTION COEFF. AT 16,000DEGREE\$K AGREE WELL IN THE
REGION FROM 6000 A TOWARDS LONGER WAVELENGTHS.

UNCLASSIFIED

USSR

Aerosols

UDC 543.84:(546.42+546.641):541.182.2/3

YUSHKAN, YE. I., ROVINSKIY, F. YA., STUKIN, YE. D., IOKHEL'SON, S. B., and
TSYBUL'NIK, G. S.

"Express Method for the Determination of ^{90}Sr , ^{89}Sr , and ^{91}Y in Aerosol Samples"
Leningrad, Radiokhimiya, Vol 13, No 6, 1971, pp 872-875

Abstract: A rapid method for concurrent determination of ^{90}Sr , ^{89}Sr , and ^{91}Y has been developed. Aerosol samples collected on filters are combusted at 500° and treated repeatedly first with a mixture of hydrofluoric acid and nitric acid, then with concentrated HNO_3 . Dry residue is dissolved in 1 M HCl, strontium and yttrium carriers are added, and strontium sulfates are precipitated by addition of a 5% H_2SO_4 solution followed by alcohol. The precipitate is separated by centrifugation and redissolved in 10% ammoniacal solution of trilon B. Yttrium remains in original mother liquor. From this step both materials are processed concurrently. To separate strontium it is converted to a carbonate salt, redissolved, $\text{Fe}(\text{NO}_3)_3$ is added to precipitate $\text{Fe}(\text{OH})_3$ and strontium finally converted again to the carbonate, its activity is counted on a β -spectrometer. In the other sample yttrium is isolated in form of a hydroxide, redissolved to remove possible accompanying impurities of Ce and Sr

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USSR

YUSHKAN, YE. I., et al., Radiokhimiya, Vol 13, No 6, 1971, pp 872-875

by precipitating them as sulfates, and yttrium is finally reprecipitated as a hydroxide, converted to an oxalate and its activity is counted on a β -spectrometer. Both materials are obtained in yields of 75-85%.

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- 13 -

USSR

UDC 621.375.82

BAKEYEV, A. A., VAS'KOVSKIY, Yu. M., VOROB'YEVA, N. N., ORLOV, V. K., and ROVINSKIY, R. Ye.

"The Role of a Plasma Torch in the Energy Balance of the Process of the Action of Laser Emission on Materials"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 77-80 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D899 from authors' abstract)

Translation: The authors measured the energy reemitted by a plasma torch in a wide spectral interval (0.2-4 microns) during the action of laser emission on opaque obstructions. The power density of the incident beam was $\sim 10^6$ and $\sim 10^7$ w/sq cm with retention of the size of the spot on the target. The targets used were duralumin, ebonite, and graphite. It is shown that the energy reemitted by the plasma torch is from 20 to 50 percent of the energy of the laser beam, depending on the material and exposure conditions. The resultant experimental data are used as the basis for evaluating the role of other factors in the energy balance of the action of laser emission on materials. Bibliography with six titles.

1/1

USSR

UDC: 529.78

LEYKIN, A. Ya., ROVINSKIY, V. Z., TOMASHKO, I. V., FERTIK, N. S.

"Use of Passive Rubidium Frequency Measures as Storage Devices in the Time and Frequency Service Operated by the Khar'kov State Institute of Measures and Measuring Instruments"

Tr. Metrol. In-tov SSSR. Khar'kov. NII Metrol. [Works of Metrological Institutes of the USSR. Khar'kov. Scientific Research Institute for Metrology], 1972, No 7, pp 360-374 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 4, 1973, Abstract No 4.32.538, from the Resume).

Translation: The primary characteristics of passive rubidium frequency measures which have been developed and the first results of their use as storage devices in the time and frequency service by the Khar'kov State Institute of Measures and Measuring Instruments are reported. The long-term frequency instability of the rubidium storage devices is $(1.5-2) \cdot 10^{-11}$. The mean square relative random frequency deviation from its mean value with a time interval measurement of one day. No systematic drift of the devices exceeding the measurement of error was discovered over the measurement time (two months). The short-term frequency instability of the devices is

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USSR

LEYKIN, A. Ya., et al., Tr. Metrol. In-tov SSSR. NII Metrol., 1972, No 7, pp 360-374

$1.5 \cdot 10^{-10}$	with a time measurement interval of 0.1 sec
$5 \cdot 10^{-11}$	" " " 1 sec
$1.5 \cdot 10^{-11}$	" " " 10 sec
$3 \cdot 10^{-12}$	" " " 100 sec
$2.5 \cdot 10^{-12}$	" " " 1 hr

The values of relative mean square random frequency variation are presented. 3 figures, 2 biblio. refs.

2/2

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USSR

Aluminum and Its Alloys

UDC 621.74.043.06

RUDENKO, A. F., BODYAKO, M. N., and ROVKACH, V. R., Physico-Technical
Institute, Academy of Sciences BSSR

"The Possibility of Increasing the Thickness of an Anode
Coating on an Aluminum Chill-Mold"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnich-
eskikh Nauk, No 4, 1973, pp 53-57

Abstract: The authors of this article have selected the op-
timal composition of an electrolyte for a thick-layer anod-
izing of aluminum chill-molds. They established the exper-
imental dependences between the size of the electrical par-
ameters (anode current density, voltage on the vat termi-
nals) and thickness of the anode coating on the working sur-
face of the aluminum forms. They show the necessity of using
powerful sources of direct current for depositing an anode
coating thicker than 0.25 mm.

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USSR

RUDEKNO, A. F., et al., Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1973, pp 53-57

Figure 1 illustrates the anodizing of experimental aluminum chill-molds and Figure 2 shows the change in voltage and current density as a function of growth in thickness of the anode coating. Table 1 gives the dependence of specific rate of growth in the anode film on the AL9 alloy on the amount of Mg in it and on the composition of the electrolyte. Table 2 shows the dependence of maximal thickness of the anode film on chill-molds of the AL9 alloy on the amount of magnesium in it.

The article contains 2 illustrations, 2 tables, and 4 bibliographic references.

USSR

UDC: 681.327

GREBENYUK, O. T., LEVCHENKO, V. N., ROVNER, I. A.

"Device for Copying from Punch Tape to Punch Cards"

Obmen opytom v radioprom-sti (Exchange of Experience in the Radio Industry), Vyp. 4, Moscow, 1970, pp 47-48 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep 70, Abstract No 9B486)

Translation: This article contains a study of a device for copying from punch tape to punch cards which permits automatic and remote punching of punch cards in accordance with the information read from the punch tape. The device is designed for use in the Ural 11-B digital computer. There is one illustration.

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USSR

UDC 576.851.42

ISPENKOV, A. Ye., ROVNEYKO, Z. P., and OB"YEDKOV, G. A., Belorussian Institute of Veterinary Medicine

"Protein, Protein Fractions, and Nucleic Acids in Calves Experimentally Infected with Brucellosis, Pathogen, Br. abortus bovis strain, No 544"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Sel'skokhozyaystvennykh Nauk, No 4, 1972, pp 97-101

Abstract: The dynamics of protein, protein fractions, and nucleic acids in 4- to 5-month-old calves experimentally infected with Br. abortus bovis strain No 544 and 2260 were studied. The microorganisms were injected subcutaneously in the neck region 3 times in doses of 100,000, 2 billion, and 3 billion cells at 20- to 30-day intervals. The animals developed a latent form of brucellosis, with no clinical symptoms of the disease and with mild immunobiological reactions. The maximum mean agglutinin titer was not recorded until the 28th day after the second infection, 1:110. Complement-fixing antibodies were not detected at any time during the study.

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USSR

UDC 616.988.75-085.371-035.2

KOSYAKOV, P. N., ROVNOVA, Z. I., and ISAYEVA, Ye. I., Institute of Virology
imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"The Importance of Antibodies and Interferon in Resistance to Influenza Virus
in Early Stages of Immunization"

Moscow, Voprosy Virusologii, No 2, 1973, pp 172-175

Abstract: The relative importance of antibodies and interferon in influenza immunity were investigated on 3 groups of 16-18 g male mice. One group served as a control, another group was immunized intravenously with an influenza virus A/PR-8 vaccine, and a third group was treated intranasally with Newcastle disease virus (NDV) to induce interferon production. Blood and lung biopsies were tested at 4 and 24 h to determine interferon titers in the three groups through CPE inhibition in L cell tissue cultures induced by vesicular stomatitis virus. The results showed that the NDV-treated group had interferon present in both tissues by 4 h, and titers ranging from 1:32 to 1:64 in the lungs by 24 h, and from 1:16 to 1:64 in the blood. The immunized group showed the presence of interferon in the blood and in the lungs by 4 h, but not by 24 h, while the control group was negative at all times. Challenge with a living influenza A/PR-8 virus 4, 24, and 48 h after immunization or NDV treatment resulted in significant lowering of mortality only in the immunized group. In another

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USSR

KOSYAKOV, P. N., et al., Voprosy Virusologii, No 2, 1973, pp 172-175

series of experiments studies were conducted on daily mortality following viral challenge 4 or 24 h after immunization or NDV treatment. The studies showed that while in all cases interferon showed some effectiveness in reducing mortality during the first 7-8 days, by day 14 the mortality for the immunized mice was 38.4%, for the NDV treated mice 67.6%, and for the control group 67.7% in animals challenged at 4 h. The final mortality figures for the animals challenged at 24 h at day 14 were, for the immunized, NDV treated, and control mice, respectively: 19.2%, 75.3%, and 62.3%. The data thus show that immunization with the formol vaccine was effective in eliciting protecting antibodies, and that interferon played a transient protective role during the first week of infection with influenza virus A/PR-8. In the immunized animals complement fixing antibodies were present in titers of 1:10 to 1:20 by 24 h, and virus neutralizing antibodies were also detected.

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1/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--VIRUS ANTIGENS IN RELATION TO HOST SPECIES -U-

AUTHOR--(03)--POSEVAYA, T.A., ROVNOVA, Z.I., KOSYAKOV, P.N.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 283-287

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEWCASTLE DISEASE VIRUS, TISSUE CULTURE, ANTIGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1852

STEP NO--UR/0402/70/000/003/0287/0291

CIRC ACCESSION NO--AP0125463

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125463

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ADDITION TO VIRUS SPECIFIC ANTIGENS, NEWCASTLE DISEASE VIRUS WAS FOUND TO CONTAIN ALSO ANTIGENS OF CELLS IN WHICH THE VIRUS WAS PROPAGATED. THE SET OF CELL ANTIGENS IN THE VIRUS CHANGES AND DEPENDS UPON SPECIES APPURTENANCE OF THE HOST. THE VIRUS WHICH WAS PROPAGATED IN CELLS OF CHORIOALLANTOIC MEMBRANE OF CHICK EMBRYO CONTAINED SPECIES SPECIFIC (PROTEIN) ANTIGEN, ANTIGEN OF FURSSMAN TYPE AND ANTIGEN SIMILAR TO GROUP A SUBSTANCE. THE SAME VIRUS PROPAGATED IN SCH CELLS INCLUDED IN ITS STRUCTURE THE SPECIES ANTIGEN INHERENT IN SIMIAN CELLS, AS WELL AS GROUP B COMPONENT. NO HETEROGENOUS FURSSMAN ANTIGEN WAS FOUND IN THE VIRUS PROPAGATED IN SCH CELLS. FACILITY: INSTITUT VIRUSOLOGII IMENI D. I. IVANOVSKOGO AMN SSSR, MOSKVA.

UNCLASSIFIED

R
USSR

UDC 576.858.097.3

ROVNOVA, Z. I., and KOSYAKOV, P. N., Institute of Virology imeni
D. I. Ivanovskiy, Academy of Medical Sciences USSR

"The Ability of Antibodies to Break Up the Complex of Inhibitors
and Viruses"

Moscow, VoProsy Virusologii, No 1, 1970, pp 23-27

Abstract: Antibodies added to influenza virus (A2/Sing) were able to dissolve the combination of inhibitor (heated guinea pig serum) and viral hemagglutinins, causing the inhibitor to enter the medium in a free state, while the antibodies were fixed by the virus. It was suggested that inhibitors and antibodies not only act on the same hemagglutinating function of the virus, but compete for the same receptor. By virtue of their greater attraction for virus, antibodies seem to be able to prevent inhibitors from combining with viral hemagglutinins. Schematically, the process can be represented as follows: [virus - inhibitors] + antibodies → [virus - antibodies] + inhibitors. The ability of antibodies to detach influenza virus from the surface of a sensitive cell is apparently based on a similar mechanism.
1/1

- 21 -

1/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--ON THE CAPACITY OF ANTIBODY TO DRIVE OUT INHIBITORS FROM THEIR
COMBINATION WITH VIRUSES -U-

AUTHOR--(02)-ROVNOVA, Z.I., KOSYAKOV, P.N.

R

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 23-27

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SEROLOGIC TEST, INFLUENZA VIRUS, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1987/0069

STEP NO--UR/0402/70/000/001/0023/0027

CIRC ACCESSION NO--AP0103749

UNCLASSIFIED

2/2 016

CIRC ACCESSION NO--AP0103749
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

SEROLOGIC STUDIES OF A COMPLEX FORMED BY INFLUENZA VIRUS AND INHIBITORS AND THE EFFECT OF ANTIVIRAL ANTIBODY. THE ANTIBODY WAS SHOWN TO BE CAPABLE OF DRIVING OUT THE INHIBITORS FROM THEIR COMBINATION WITH VIRUS HEMAGGLUTININS. UNDER THE EFFECT OF ANTIBODY FREE INHIBITORS ARE RELEASED INTO THE MEDIUM AND ANTIBODY IS FIXED BY THE VIRUS. THE PATTERN OF INTERACTION OF ANTIBODY AND INHIBITORS WITH INFLUENZA VIRUS INDICATES HIGHER AVIDITY OF ANTIBODY AS COMPARED WITH THAT OF SERUM INHIBITORS. THE EVIDENCE OBTAINED SUGGESTS THAT INHIBITORS AND ANTIBODY NOT ONLY AFFECT ONE AND THE SAME HEMAGGLUTINATING FUNCTION OF THE VIRUS BUT ALSO COMPETE FOR ONE AND THE SAME RECEPTOR.

UNCLASSIFIED

USSR

UDC 533.682

YERMOLENKO, S. D., ROVNYKH, A. V.

"Solution of the Problem of a Wing of Arbitrary Shape in the Plan View Moving Near a Shielding Surface"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Aviatsionnaya Tekhnika, No 1, 1971, pp 5-14

Abstract: The problem of a wing of arbitrary shape in the plan view moving near a shielding surface is solved in the nonlinear statement since at small distances from the shield even the aerodynamic characteristics of very long wings are essentially nonlinear. The statement is based on the vortex model in which the wing is replaced by a system of oblique horseshoe vortexes. The connected parts of the vortexes are located in the plane of the chords, and the free parts make angles with it found from the condition of coincidence of the vortex with the local velocity vector in the vicinity of the trailing edge of the wing. The aerodynamic characteristics are determined for the cross sections and the wing as a whole.

Calculations examples are presented, and a comparison is made with the calculation by the linear theory and experimentation for wings of various shapes

YERMOLENKO, S. D., et al., *Izvestiya Vysshikh Uchebnykh Zavedeniy -- Aviat-sionnaya Tekhnika*, No 1, 1971, pp 5-14

in the plan view in broad ranges of attack angles and distances from the trailing edge of the wing to the shield.

The solution obtained can be considered with sufficient grounds to pertain to a wing moving both near the Earth and near a smooth water surface inasmuch as it is proved theoretically and experimentally that the latter can be considered a solid wall without introduction of significant error. Although the described method of replacing the lifting surface by a system of discrete vortexes and the relations obtained are applicable to a wing of arbitrary shape in the plan view, when deriving the final formulas the investigation was restricted to the class of wings with rectilinear edges.

2/2

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USSR

YERMOLENKO, S. D., and ROVNYKH, A. V.

"Range of Practical Application of Linear Lifting-Surface Theory to Calculation of Aerodynamic Wing Characteristics"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb.
(Aircraft Construction and Equipment of the Air Fleet -- Republic Inter-
departmental Collection of Scientific and Technical Works), 1970, vyp. 20,
pp 29-34 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B379 by V. I.
Putyata)

Translation: The article compares experimental local and total characteristics of certain types of wings, with characteristics obtained by calculation in accordance with linear and nonlinear theory. It is shown that even for wings with not very low aspect ratios the local characteristics, and for wings moving in the vicinity of the interface even total aerodynamic characteristics, are linearly dependent on angle of attack only at very low values of the latter. It is pointed out that nonlinear theory provides significantly greater possibilities for practical application.

1/1

1/2 040
UNCLASSIFIED
TITLE--NONLINEAR THEORY OF A BEARING SURFACE IN AN INCOMPRESSIBLE FLOW -U-
PROCESSING DATE--11DEC70
AUTHOR--(02)--YERMOLENKO, S.D., ROVNYKH, A.V.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK SSSR, SIBIRSKOE OTDELENIE, IZVESTIIA, SERIIA
TEKHICHESKIKH NAUK, FEB. 1970, P. 12-21
DATE PUBLISHED--FEB70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS
TOPIC TAGS--ANTIFRICTION BEARING, SURFACE PROPERTY, THIN FILM,
INCOMPRESSIBLE FLOW
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1235
STEP NO--UR/0288/70/000/000/0012/0021
CIRC ACCESSION NO--AP0124889
UNCLASSIFIED

2/2 040

CIRC ACCESSION NO--AP0124889

UNCLASSIFIED

PROCESSING DATE--11 DEC 70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLUTION OF THE PROBLEM OF A BEARING SURFACE OF AN INCOMPRESSIBLE FLOW ON THE BASIS OF A VORTEX MODEL OF THE WING. ONLY SYMMETRICAL WINGS MOVING WITHOUT SLIPPING ARE CONSIDERED, AND WORKING FORMULAS ARE PRESENTED ONLY FOR WINGS WITH RECTANGULAR EDGES. TO SIMPLIFY THE PROBLEM, THE VORTEX SURFACE AND THE WAKE ARE REPLACED BY A SYSTEM OF OBLIQUE HORSESHOE SHAPED VORTICES. FORMULAS FOR THE PROJECTIONS OF THE VELOCITY INDUCED AT AN ARBITRARY POINT IN SPACE BY A SINGLE OBLIQUE HORSESHOE SHAPED VORTEX ARE DERIVED.

UNCLASSIFIED

USSR

UDC 537.528

NAUGOL'NYKH, K. A., and ROY, N. A.

Elektricheskiye razryady v vode (Electrical Discharges in Water), Moscow, "Nauka," 1971, 155 pp

Translation: Annotation: This monograph is concerned with investigating the hydrodynamic phenomena during electrical discharges in a liquid. The bases for the book are mainly the research of the authors and their associates in this field. The monograph gives the qualitative picture of the phenomena, during an electrical discharge in water, in their real sequence. The methods of initiating the electrical discharge in a liquid are described. The physical processes which take place in the discharge channel and the properties of the material in it are examined. Experimental data are cited on the electrical characteristics of the discharge and themes of expansion of the channel. Theoretical models for the discharge as a hydrodynamic phenomenon are examined, and a comparison is made of the results of the computation with the experimental data.

The book is intended for scientific researchers; that is, physicists and specialists who employ electrical discharges in a liquid as the sources of pressure impulses. The book contains 90 illustrations, 15 tables, and 76 bibliographic entries.

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- 84 -

USSR

KOROLYUK, A. P., ROY, V. E., Institute of Radio Physics and Electronics,
Academy of Sciences of the Ukrainian SSR

"'Giant' Oscillations of Acoustoelectric Current"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17,
No 4, 20 Feb 73, pp 184-186

Abstract: The acoustoelectric effect is observed and studied in a conductor (bismuth single crystal with $R_{292}/R_{4,2} \approx 300$) at liquid helium temperatures. The studies were done on frequencies of 165 and 500 MHz at temperatures from 4.2 to 1.5°K. In magnetic fields up to $2.387 \cdot 10^5$ amp/m quantum oscillations of acoustoelectric current are observed, including "giant" oscillations. A new method is proposed for studying the electric spectrum of carriers in the conductor, which enables unique determination of the sign of the effect. The experiment is arranged so that the magnetic field vector can be rotated through π radians relative to the sound vector in the plane of the binary and bisector axes of the crystal. The maximum electroacoustic effect measured in the experiments was $5 \cdot 10^{-6}$ v·cm²·W⁻¹ when the intensity of the acoustic flux was 0.01 W·cm².

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USSR

KOROLYUK, A. P., ROY, V. F.

UDC 621.315.592

"Acoustomagnetolectric Effect in Tellurium"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 556-558

Abstract: It was demonstrated previously by E. M. Epshteyn, et al. [FTT, No 9, 376, 1967] that the acoustomagnetolectric effect is possible in semiconductors with monopolar conductivity. The physical picture of its occurrence arose from scattering of the electrons with respect to energies, the dependence of their relaxation time (with respect to pulse) on the energy and the fact that the sonic flow and the electric field deform the distribution function of the electrons differently. The directional "partial currents" equal with respect to magnitude and opposite in direction, the mean electron energy in which is different, are deflected differently in the magnetic field as a result of which a transverse potential difference occurs. In the present article results are presented from experiments with monocrystalline tellurium alloyed with antimony with p-type conductivity (at a temperature $T < 100^\circ \text{K}$). X-cut samples $6 \times 6 \times 2 \text{ mm}$ were prepared from single crystals with carrier concentrations at helium temperatures of $p = 5 \cdot 10^{13}$ and $p = 2 \cdot 10^{14} \text{ cm}^{-3}$. The prepared sample was attached by acoustic binding to a buffer of monocrystalline Z-section quartz.

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USSR

KOROLYUK, A. P., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 556-558

The same procedure was used to attach a piezoacoustic longitudinal wave converter to the opposite side of the buffer made of a lithium niobate plate with a fundamental frequency of 95 megahertz. The converter was excited to the third harmonic, and the studies were performed at the temperatures of liquid nitrogen and helium. A graph is presented showing the magnitude of the acoustomagnetolectric effect U_{AME} as a function of the magnetic field intensity H obtained at both temperatures. The function is linear and corresponds to the expression for the U_{AME} field obtained earlier. Another figure is presented showing the angular dependence of the projection of the U_{AME} vector in the direction of the trigonal axis (the probing electrodes are located along the trigonal axis) as a function of the direction of the vector H in the plane of the trigonal and bisector axes. E_{AME} changes sign on variation of the direction of the magnetic field which reaches a maximum for H perpendicular to the trigonal axis.

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6-73

1x-8b. EPIITAL DEPOSITION OF 8-SiC LAYERS FROM THE GAS PHASE
HEATING

[illegible]

The β -SiC layers were deposited on the (0001) faces of the plate α -SiC by the radiation heating of the substrate without any auxiliary elements. To realize the deposition process and its investigation, a special device was built which provides for broad variation of the deposition conditions (the pressure component, concentrations, substrate temperature, gas flow rate and analysis of the β -SiC mixture). In the course of the process, gas flow rate and deposition conditions. Special parameters and

The growth of the monocrystalline layers of β -SiC was observed only in a narrow range of values of the basic process parameters. The course of the liquid layer and silicon drops on a substrate during the growth process was observed. With constant reduction of the flow rate during the growth of the layer was not constant; usually it decreased through the removal of causes the translocation was noted from growth of the layer, and in a number of cases the translocation of the layer was noted. The growth layers of the structure, the surface morphology and the uniformity of the

6-73

1X-89. THE MECHANISM AND KINETICS OF THE GAS-PHASE REDUCTION OF α -SIC FROM $\text{Cl}_3\text{SiCl}_3 + \text{H}_2$ WITH RADIATION HEATING

State of the A. Yashov, B. G. Peskov, O. G. Peskov, A. D. Ryabkov, Lenin
Gradi Novosibirsk, III Semestru po Proektirovaniye Konei i Stantsionirovaniye
Kriticheskoye Ploshchad, Novosibirsk, 1972, p. 1-17

The growth of monocyclizing layers of β -SiC on γ -SiC substrates from a gas mixture of $\text{CH}_3\text{SiCl}_2 + \text{H}_2$ in the presence of radiation heating as described by a number of characteristic features from method of heating the substrate. However, there are grounds to believe that the mechanism of chemical reactions, however, there are grounds to believe in general.

Direct experimental observations indicate the course of crystallization by the vapor-liquid-solid-state mechanism where the role of the liquid phase is played by the melt. The surface nature of the crystallization depends on the nature of the heating on the side of the substrate toward the β -SiC layers.

The composition of the products of the deposition process of B-SiC is based on a thermodynamic analysis of the chemical reactions constructed on silicon monoxide, two parallel branches of the chemical reactions constructed on silicon and carbon. These branches of the chemical reactions take place in processes parameters... The proposed schematic for the reaction kinetic dependence of the dependence of the layer growth rate on the deposition temperature. From the investigation of the process mechanism and kinetics, the paths of optimizing the set of process conditions follow.

USSR

UDC: 621.384.639

184

ABROSIMOV, N. K., ALKHAZOV, D. G., DMITRIYEV, S. P., YELISEYEV, V. A.,
KAMINKER, D. M., KULIKOV, A. V., MIRONOV, Yu. T., MIKHAYEV, G. F.,
RYABOV, G. A., CHERNOV, N. N., SHALMANOV, V. I., KOMAR, Ye. G., MALY-
SHEV, I. F., MONOSZON, I. A., PEREGUD, V. I., ROZHDESTVENSKIY, B. V.,
ROYFE, I. M., SEREDENKO, Ye. V., Physicotechnical Institute imeni A. F.
Ioffe, Academy of Sciences of the USSR, Leningrad, Scientific Research
Institute of Electrophysical Equipment imeni D. V. Yefremov, Leningrad

"The Leningrad Synchrocyclotron for a Proton Energy of 1 GeV"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71, pp 1769-1775

Abstract: The paper describes the synchrocyclotron at the Physicotechnical
Institute imeni A. F. Ioffe of the Academy of Sciences of the USSR for a
proton energy of 1 GeV. Proton beam parameters as well as the characteristics
of the main systems of the accelerator are presented. The beam channels are
described, and the layout of the accelerator building is given. The installa-
tion has been in successful operation since 1970. Three tables, two figures,
bibliography of twelve titles.

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USSR

UDC 621.793.1

KOLTUNOVA, L. N., PETRUSHIN, A. P., and ROYKH, I. L., Odessa Technological
Institute of the Food Industry

"Protection of Aluminum Alloys From Atmospheric Corrosion by Vacuum Chromium
Coatings"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 72-74

Abstract: The protective-decorative properties of vacuum chromium coatings
on the AL2 alloy were investigated under atmospheric conditions. Sufficiently
compact and plastic coatings, well coherent with the base, were produced.
Corrosion tests of coatings conducted in chambers of tropical climate and
sea fog showed that the vacuum chromated AL2 alloy with a 20 μ m-thick coating
after 10 hrs testing in sea fog remained unchanged. Tests under industrial
conditions revealed that on a 10 μ m-thick coating dull point areas of pitting
corrosion developed, but the 20- μ m-thick coating deposited by evaporation
in vacuum retained the initial decorative appearance even after tests of
six months' duration. One figure, one table, two bibliographic references.

1/1

USSR

UDC 620.192.4

KOLTUNOVA, L. N., PETRUSHIN, A. P., RADUTSKIY, M. A., ROYKH, I. I., Odessa
Technological Institute imeni M. V. Lomonosov

"Comparative Study of the Physicomechanical Properties of Galvanic and Vacuum
Chrome Coatings on AL2 Aluminum Alloy"

Moscow, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

Abstract: The structure and properties of galvanic and vacuum chrome coatings on
AL2 Silumin are compared. Optimal chrome-plating regimes were selected. The
galvanic chrome coating was applied from a standard electrolyte (150 g/l CrO₃,
3 g/l H₂SO₄) at 48-52°C and a current density of 36-46 amp/in². The rate of
application of the chrome coating under this regime was 0.3-0.4 μ/min. The
vacuum chrome coating was produced with an electron-beam evaporator with a power
of 7-8 kw which formed a band electron beam; this beam was directed with the
aid of an appropriate deflecting electromagnetic system onto a crucible with
evaporated chrome. The optimal regime for vacuum chrome-plating of AL2 Silumin
was: surface temperature of Silumin before initial condensation of chrome
vapors 325-350°C, vacuum ahead of initial evaporation of at least 1·10⁻⁴ mm Hg,
chrome-plated Silumin temperature of 50-70°C when the air enters the vacuum

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USSR

KOLTUNOVA, L. N., et al, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

chamber. The structures of the vacuum and galvanic chrome coatings were investigated by x-ray and metallographic methods and it was found that the average grain size of galvanic chrome was $0.1-0.2 \mu$ and of vacuum chrome was 0.02μ , indicating the vacuum coating was more finely dispersed than the galvanic. The vacuum coating had excellent adhesion to the base, was plastic and did not crack even under transverse polishing. The galvanic coating was brittle and the adhesion was poor at some places. The microhardness of the galvanic chrome on Silumin at a load of 20 g was $450-500 \text{ kg/mm}^2$ and that of the vacuum chrome was $500-530 \text{ kg/mm}^2$. Wear tests showed that for a thickness of less than 10μ the vacuum chrome coatings have higher protective properties as compared with galvanic coatings both under humid atmospheric conditions and under complete immersion in a 3% solution of NaCl. This difference decreases for thicker coatings and for a thickness of more than 20μ the protective properties of vacuum and galvanic chrome coatings on AL2 Silumin are the same.

USSR

Coatings

UDC

~~ROYKH, I. I.~~ KOVALENKO, V. B., KOLTUNOVA, L. N., Odessa Technological
Institute imeni Lomonosov
"Method of Measuring Porosity of Vacuum Aluminum Coatings"
Zavodskaya Laboratoriya, No 3, 1971, pp 314-315.

ABSTRACT: A microscope method was used to perform quantitative determination of the porosity and to investigate the distribution of pores by sizes for aluminum coatings of various thicknesses. Vacuum aluminum coatings separated from the base in 25% HNO_3 were studied in transmitted light. A formula is presented for the relationship between thickness of an aluminum coating and its porosity. Porosity is strongly dependent on thickness, decreasing exponentially with increasing coating thickness.

USSR

UDC 621.793.72.016-982:[669.58+669.738

BOYKH, I. L. Doctor of Chemical Sciences, Professor, RAFALOVICH, D. M.,
Candidate of Physical and Mathematical Sciences, Reader, RYBIN, B. S.,
Engineer, PUSTOTINA, S. R., Candidate of Technical Sciences, and
BELORITSKAYA, Ye. L.

"Increasing the Adhesion Strength of Zinc and Cadmium Coatings Applied to
Steel by Vacuum Evaporation"

Moscow, Vestnik Mashinostroyeniya, No 1, Jan 71, pages 62-64

Abstract: It is demonstrated that good adhesion between coating and steel
can be produced after heating of steel in a vacuum. In order to produce
good adhesion of zinc and cadmium coatings on chemically pure steel (when
strong heating is undesirable), thin sublayers of lead can be used. Three
condensation modes are presented, all providing satisfactory adhesion of
zinc and cadmium to steel. The modes consist of chemical or electrochemical
surface preparation, heating in a high vacuum (10^{-4} - 10^{-5} mm Hg) to 450°C
and higher and at 10^{-3} mm Hg to 620°C and higher, then cooling of the steel in
to 50-200°C, followed by application of the coating; heating of the steel in
a vacuum chamber to 270-300°C, then application of a lead layer 2-4 microns
1/2

USSR

UDC 621.793.72.016-982:[669.58+669.738

ROYKH, I. L., Doctor of Chemical Sciences, Professor, RAPALOVICH, D. M.,
Candidate of Physical and Mathematical Sciences, Reader, RYBIN, B. S.,
Engineer, PUSTOTINA, S. R., Candidate of Technical Sciences, and
BELORITSKAYA, Ye. L., Moscow, Vestnik Mashinostroeniya, No 1, Jan 71,
pages 62-64

thick under a vacuum of 10^{-3} - 10^{-5} mm Hg, after which the steel is cooled to
50-200°C and the zinc or cadmium is applied; chemical or electrochemical
preparation of the surface, heating to 250-300°C under a vacuum of 10^{-3} - 10^{-5}
mm Hg, followed by application of the zinc to the heated surface of the steel.
The last mode can be used when the parts will not be strongly deformed.

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- 49 -

U40
UNCLASSIFIED
TITLE--PROTECTIVE ZINC ALUMINUM COATING VACUUM DEPOSITED ONTO STEEL -U-
AUTHOR--(03)--BUDYUK, L.F., RAFALOVICH, D.M., ROYKH, I.L.
COUNTRY OF INFO--USSR
SOURCE--KIEV, TEKHNLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP
68-70
DATE PUBLISHED--70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--ZINC PLATING, ALUMINUM PLATING, METAL COATING, BIBLIOGRAPHY,
TROPICAL ATMOSPHERE, VACUUM SUBLIMATION, VAPOR DEPOSITION, METAL
CORROSION, ATMOSPHERIC CORROSION, STEEL, CORROSION TEST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1333
CIRC ACCESSION NO--AP0123291
STEP NO--UR/0418/70/000/001/0068/0070
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123291

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CONDITIONS ARE DESCRIBED FOR OBTAINING TWO LAYER, VACUUM DEPOSITED, ZINC ALUMINUM COATINGS. THE PROTECTIVE PROPERTIES OF THESE COATINGS ARE STUDIED IN VARIOUS AGGRESSIVE MEDIA. FULL SCALE TESTS WERE CONDUCTED. IT IS SHOWN THAT THE BEST PROTECTIVE PROPERTIES ARE EXHIBITED BY COATINGS WITH A ZINC THICKNESS OF 10 MICRONS AND MORE AND WITH AN ALUMINUM THICKNESS OF 5 MICRONS AND MORE. THESE COATINGS ARE RECOMMENDED FOR PROTECTION AGAINST CORROSION IN TROPICAL CLIMATES AND INDUSTRIAL ATMOSPHERES.

UNCLASSIFIED

Acc. Nr.

AP0047675

Abstracting Service:
CHEMICAL ABST

4-70

Ref. Code
UR 0365

81953z Corrosion protection of steel in a 3% sodium chloride solution by vacuum titanium coatings. ~~Belch. Int. Fednsy. S. N.; Koltunova, L. N. (Odess. Tekhnol. Inst. Odessa, USSR). Zashch. Metal. 1970, 6(1), 52-4 (Russ).~~ Low-C cold-rolled steel strips were vacuum coated with Ti by its evapn. at an initial pressure 0.015-0.045 N/m² and 1800-900°. The condensation temp. was changed between 100 and 1250° by passing direct current through the strips. All coatings which were put on condensation temps. at >500° showed good adherence to steel, but the best protective properties were given by those put on at 450-850 and 1050-1190°. The former range yields a poreless structure and properties similar to solid β -Ti. The structure in the later range consists of a Fe-Ti alloy, mainly the intermetallic FeTi compd. The stable potential of strips covered at 1050-1190° was +0.45 V. These specimens did not show corrosion defects during 1.5 yr in a 3% NaCl soln. The thickness of Ti coatings should be $\geq 20 \mu$.

J. Pietkiewicz

Emb

REEL/FRAME
19791251

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USSR

ROYTBURD, L. N., IVANOV, I. N., BOBYLEV, V. G. and VOROB'YEVA, L. F.,
Moscow Institute of Engineering and Economics imeni S. Ordzhonikidze

"Technical and Economic Indicators of Plasma Arc Remelting"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No
6, Nov-Dec 73, pp 62-64

Abstract: This article presents the results of studies of the technical and economic indicators of plasma arc remelting. The studies were performed at the Moscow Institute of Engineering and Economics on the basis of plant report data. The studies showed that the present level of these indicators does not correspond to the actual capabilities of the process. Where production facilities are fully mastered and normal operation of the equipment is achieved, the level of utilization of calendar time reaches 89.5%. The normal level of cost of the process is 108.8 rubles per ton, the specific capital investment required per unit of capacity is 220 rubles per ton. The indicators show that plasma arc remelting is equal in these respects to vacuum arc and cathode ray remelting.

1/1

- 96 -

USSR

ROYZMAN, V. P.

UDC 534.1.62-251

"The Dynamics and Balancing of Elastically Deformed Gas-Turbine Engine Rotors"
Moscow, Dinamika Gibk. Rotorov -- Sbornik (The Dynamics of Flexible Rotors --
collection of Articles), Nauks, 1972, pp 78-84 (from Referativnyy Zhurnal --
Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.28 Resume)

Translation: The author considers the general case of an unbalanced revolving
rotor with arbitrary rigidity of the supports, and an arbitrary distribution
of masses and rigidities with account taken of the gyroscopic effect. The
Fredholm integral equations which describe the vibrations of such a rotor are
approximated by a system of linear algebraic equations. Different variants of
the solution of these equations lead to different methods of balancing: the
method of separate balancing on the basis of the forms of vibrations on rigid
and arbitrary supports, and the method of balancing at a distance from critical
rpm's based upon solution of the equations without the application of test
loads. The methods break down into a number of procedures. One method
developed and put into practice involves an integrated investigation of the
dynamics of a gas-turbine engine and includes simultaneous and coordinated

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EQUIPMENT

Aeronautical

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710010-6

USSR

UDC 533.697.3

ANUFRIEV, V. M., KOZLOV, G. I., and ROYTENBURG, D. I., (Moscow)

"Investigation of Diffusers Characteristics in Aerodynamic Shock Tube"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-
Feb 72, pp 156-161

Abstract: An experimental investigation of diffusers performance (start-up)
at $M=8$ and variable Reynolds number corresponding to transitional as well as
laminar flow in the boundary layer, in an aerodynamic shock tube is reported,
and which is an extension of the authors previous investigation. The experi-
mental setup and techniques are described. Hydrogen at 115 atm was used as
a driving gas, while nitrogen at 4 atm as a working gas. Velocity of inci-
dent shock wave propagation, pressure behind a reflected shock wave at the
nozzle inlet, as well as pressure at various points of tested diffusers
were measured during tests. Moreover, the time of working gas passage through
the nozzle was determined. Models of frontal diffusers with central body and
relative throat area $F_{in}=0.12, 0.16, 0.21$, are tested and their operation

analyzed. A method for determining the total pressure recovery coefficient
in a diffuser under condition of a shock tube is outlined. An analysis of the

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USSR

ROYZMAN, V. P., *Dinamika Gibk. Rotorov* -- Sbornik, Nauka, 1972, pp 78-84

measurement of the vibrations of supports and housings, measurement of the deflections of rotor stages, working modes of the bearings, elongation of the disks, drums, and blades. The results of theoretical research are confirmed by experiments conducted on full-scale engines under operating conditions and under vacuum-chamber conditions at operational rpm's. 1 figures, 4 references.

2/2

- 50 -

1/2 028
UNCLASSIFIED
TITLE--CHARACTERISTICS AND POTENTIALITIES OF A DISCHARGE CONDENSATION
CHAMBER -U-
AUTHOR-(03)-MANDZHAYIDZE, Z.SH., ROYNISHVILI, V.N., DZHAVRISHVILI, A.K.
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ABSTRACT. A NEW DETECTOR OF ELEMENTARY PARTICLES IS DESCRIBED. IT IS A DISCHARGE CONDENSATION CHAMBER BASED ON 2 STAGE DETECTION OF PARTICLES WITH CONSECUTIVE USE OF THE DISCHARGE AND CONDENSATION METHODS OF REGISTRATION. IN THE 1ST STAGE THE IONIZATION E GENERATED BY THE CHARGED PARTICLES IN THE WORKING GAS MIXT. WITH THE CONDENSATE ARE ACCELERATED IN THE PULSED ELEC. FIELD AND BECOME THE INITIATORS OF THE GAS DISCHARGE. THE AMPLITUDE AND PULSE LENGTH ARE SELECTED TO INTERRUPT THE DISCHARGE AT THE STAGE OF TOWNSEND SHOWERS. IN THE 2ND STAGE THE CONDENSATION OF THE SUPERSATD. VAPOR ON IONS ALONG THE TRAJECTORY OF A PARTICLE TAKES PLACE. THE DEGREE OF SUPERSATN. IS PICKED A LOT LOWER THAN THE THRESHOLD NEEDED FOR CONDENSATION ON DISCRETE IONS BUT ADEQUATE FOR CONDENSATION ON DENSE ACCUMULATIONS OF IONS SUCH AS A TRACK AFTER THE GASEOUS AMPLIFICATION IN STAGE 1. THE CHAMBER HAS A HIGH TIME RESOLN., A LONG MEMORY OF DISCRETE PHENOMENA, FULL ISOTROPY, GOOD SPATIAL RESOLN., TRACK BRIGHTENERS, AND POSSIBILITY OF USING MANY GASES, HE AND H INCLUDED.

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ANDRONIKASHVILI, E. L., ROYNISHVILI, Ye. Yu. and KHECHINASHVILI, N. N., Institute of Physics, Academy of Sciences, Georgian SSR, Tbilisi

"Calorimetric Study of the Possibility of Phase Transformations in Biological Tissues at Low Temperatures"

Moscow, Biofizika, Vol 15, No 3, May/Jun 70, pp 484-487

Abstract: The dependence of specific heat on temperature was studied in calf liver and frog muscle by the method of low temperature calorimetry at -196°C to $+10^{\circ}\text{C}$. Using a preparation of liver and muscle in Earl's solution and glycerine of various concentrations, it is possible to extend significantly the interval of crystallization, and to displace the onset of crystallization of water, however no low-temperature phase transformations were noted in these experiments.

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USSR

UDC 612.822.3

ROYTBAK, A. I., and KASHAKASHVILI, R. P., Physiology Institute, Academy of Sciences Georgian SSR

"The Effects of Tetrodotoxin on Direct Cerebral Cortical Responses in the Cat"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 26, No 9, 1973, pp 939?

Abstract: Direct experiments conducted on pentobarbital sodium-anesthetized cats showed that the dendrite potential in the supra-Sylvian gyrus elicited by direct bipolar and unipolar silver electrodes is eliminated when $1-5 \times 10^{-6}$ g/ml of tetrodotoxin is applied as droplet or by saturated cotton ball between the electrodes or at the electrode location. The indifferent electrode was located on a cranial muscle. The latent period and configuration of the dendrite potential elicited by either the bipolar or unipolar stimulus was not affected by tetrodotoxin; however, low tetrodotoxin concentrations would only weaken the dendritic potential elicited by strong stimuli and completely abolish those induced by weak stimuli. Tetrodotoxin also abolished the slow negative potential whether induced by direct unipolar or bipolar stimulation. Following tetrodotoxin application excursion of K^+ into the extracellular space could have been expected; however, there was no evidence of depolarization of the glial cells by K^+ .

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USSR

UDC 612.816

ROYTBAK, A. I., DELADRISHVILI, Ts. M., and GOTSIRIDZE, I. K., Scientific
Research Institute of Physical Culture, Georgian SSR

"The Expectancy Wave (E-Wave) in the Presence of Muscular Fatigue"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 25, No 6-7, Jun/Jul 72, pp 95-99

Abstract: E-waves were studied as possible indexes of muscular fatigue. Sports school students and youths not involved in sports responded to an instruction for motor activity (pressing a button) 1-3 sec after a preparatory sound signal prior to and after work on a bicycle ergometer. Light motor activity (balancing on the exerciser) caused E-waves to be more distinct than those recorded at rest. After exercising, E-waves were suppressed for varying periods of time depending on the amount of exercise and the test subject's background: E-wave recovery took longer for non-athletes than for athletes. On the example on one test subject, recovery times were 4, 7, 13, and 17 minutes after working on the exerciser 1, 1.5, 2.5, and 3 minutes. It is concluded that E-waves are a better index of muscular fatigue than the EEG.

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USSR

UDC 535.345.1

LISOVETS, YU. P., POLUEKTOV, I. A., POPOV, YU. M., ROYTERG, Y. S.

"Passage of a Coherent Ultrashort Light Pulse Through a Semiconductor"

Moscow, Kvantovaya Elektronika, No 5, 1971, pp 28-36

Abstract: Resonance interaction of an ultrashort coherent light pulse with a semiconductor, when the pulse duration is less than the polarization relaxation time or the "phase memory" of the medium, is discussed. The possibility of the existence of the effect of self-transparency under interzone transitions in semiconductors is first considered. This effect means that under certain conditions powerful ultrashort light pulses propagate practically without energy dissipation through an absorbing medium which becomes transparent for them. The medium then consists of a set of "two-level" atoms or molecules which have an allowed dipole transition in resonance with the carrier frequency of the pulse and which interact with one another only through the radiation field. The problem of the interaction of a coherent light pulse with a semiconductor is analyzed in detail, and conditions ensuring the passage of a pulse without energy losses i.e., self-transparency are determined. It is shown that under certain conditions the formation of a steady-state 2π -pulse is possible.

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LISOVETS, YU. P., et al., Kvantovaya Elektronika, No 5, 1971, pp 23-36

Numerical values of the rate of propagation of a stable pulse are obtained for characteristic values of semiconductor parameters. It is observed that under conditions characteristic of many semiconductors the self-transparency effect is possible in principle, and the stationary pulse that arises can move at a speed that is an order of magnitude less than the ordinary speed of light in the given material.

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ROYTBLAT, L. M.

"Changes in the Nitrogen Metabolism of Rats Under the Influence of Peroral Administration of Radon Water of Different Activity"

V sb. Vopr. Kurortologii (Problems of Health Resort Science), Pyatigorsk, 1973, pp 28-30 (from RZh-Biologicheskaya Khimiya, No 24, Dec 73, Abstract No 2192)

Translation: Nitrogen metabolism of rats was investigated in relation to a 3-week peroral administration of radon water at concentrations of 0.18, and 36.4 μ curie/l (3 ml per day). Rats getting 0.18 μ curie/l showed no changes in the content of total protein (B) in the liver and the rate of synthesis of B in liver, blood serum, spleen, thyroid, pancreas and adrenal glands. However B of the thyroid gland showed negligible (0.6 fold), and B of the adrenals a pronounced drop in the rate of circulation of B, and in the relationship of the blood serum and liver to B. The circulation of pancreatic B and spleen B was accelerated by 1.9 times. Much more pronounced shifts and complex rearrangements in the metabolism of B were noted in rats after administration of radon water of 36.4 μ curie/l concentration. Highly emanating water (in contrast to weakly 1/2

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ROYTBLAT, L. M., Vopr. Kurortologii, Pyatigorsk, 1973, pp 28-30

emanating) caused an irreversible reaction -- accelerated regeneration of B in the liver, blood serum, endocrine glands and especially in the spleen. It was concluded that the biological activity of radon water after internal administration is related to the dose of radon, a fact to be considered in its clinical utilization.

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Foundry

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UDC 669.187.046

ROYTBURD, L. N., IVANOV, I. N., KARPCV, A. G., and GERGAUZ,
G. V., Moscow Engineering-Economics Institute

"Important Reserve for Increasing the Economic Effectiveness
of Electroslag Smelting"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 11, 1973, pp
186-188

Abstract: By now the high national economic effectiveness
of one of the new procedures for improving the quality of
alloyed steels and alloys, that is, the process of electro-
slag smelting, can be considered proven. However there is
still room in the metallurgical enterprises for improving
the effectiveness of this process and its technico-economic
indicators.

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ROYTBURD, L. N., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 11, 1973,
pp 186-188

The authors discuss some of the ways in which this
can be done with respect to cost of using various alloys
and fluxes.

They have compiled a table which illustrates the
calculations of the cost of one ton of liquid flux employed
in the process.

The article contains 1 table.

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UDC 669.15-194.003.1

ROYTBURD, L. N., IVANOV, I. N., and BERGAUZ, G. V.

"The Usefulness of Electroslag Remelting in the National Economy"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4(82)
Jul-Aug 73, pp 66-68

Abstract: Results are presented of an investigation of the economic impact of the introduction of the electroslag remelting (ESR) process. The economic effect is seen as the algebraic sum of expenditures for the production and utilization of the metal. The use of electroslag metal in the production of responsible bearings reduces waste in metal processing and prolongs the life of bearings by a factor of 2-3 and results in an economy of up to 5319 rubles/ton. The economy resulting from introducing EI961 heat-resistant steel in the production of compressor disks is 1849 rubles/ton. The introduction of 40KhNMA steel for the production of longerons produces savings of 6200 rubles/ton, while the introduction of 1Kh17N2 stainless steel for production of turbine blades results in savings of 13,250 rubles/ton.

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UDC: 62-52

ROYTENBERG, Ya. N.

"Automatic Control"

Moscow, "Nauka," 1971, p 2

Translation of Annotation: This book is meant to be a student textbook in mechanical-mathematical and physicomathematical university departments.

It presents the theory of linear control systems in unidimensional as well as multidimensional forms. Methods are considered for investigating stability and transient processes in linear stationary systems. Methods are proposed for analyzing the absolute stability of nonlinear control systems. Further study is devoted to systems with finite control time. The theory of functions of a matrix is discussed in addition to questions of the controllability and observability of linear stationary and nonstationary systems.

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ROYTENBERG, Ya. N., "Nauka" 1971, p 2

A large part of the book is devoted to questions of optimal control. A method is proposed for the dynamic programming of discrete systems as well as continuously operating systems, and the Pontryagin principle of the maximum is discussed. Systems are discussed in detail with the quadratic quality criterion. Problems of system optimization in the presence of random noise are also considered. The methods of A. N. Kolmogorov and N. Wiener are given, and the Kalman-Bucy theory of optimal filters is explained in detail.

Bibliography of 95 titles and 58 illustrations.

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